EUROCAE WG-50 ACTIVITY

AIRCRAFT ON BOARD VIDEO RECORDING

Philippe PLANTIN DE HUGUES

BUREAU ENQUETES-ACCIDENTS
Technical Division
Aéroport du Bourget
93352 Le Bourget CEDEX
FRANCE
Tel:33.1.49.92.72.91
Fax: 33.1.49.92.72.03
Email: bealab@francenet.fr

Thomas PERRY

CIVIL AVIATION AUTHORITY
(SRG)
Aviation House
Gatwick
UNITED KINGDOM
Tel: 44.1.293.573.025
Fax: 44.1.293.573.974
Email: tom.perry@srg.caa.co.uk

EUROCAE WG-50 ACTIVITY

AIRCRAFT ON BOARD VIDEO RECORDING

KEYWORDS
Aviation,
EUROCAE
On-board video recording
Data-link

INTRODUCTION

The subject of the presentation is to introduce the work done by the Working Group 50 of EUROCAE regarding flight recorders performance specifications and mainly the on-board video recording..

EUROCAE

EUROCAE is a non-profit making European association established in 1963. The primary objective of EUROCAE is the development of performance specifications for civil aviation equipment to be adopted as regulatory documents by European authorities. EUROCAE membership comes mainly from industry, civil aviation administrations and users. The association works in close cooperation with its American counterparts, RTCA and SAE, with the permanent objectives of publishing compatible documents and supporting the interests of manufacturers and users worldwide.

EUROCAE:
70 member organizations
14 nations worldwide
7 international organizations
17 working groups
600 engineers
80 documents published

WG-50 TERMS OF REFERENCE

Aeroplanes and helicopters are respectively required by JAR-OPS 1 and 3 subpart K to be equipped with a Flight Data Recorder and/or a Cockpit Voice Recorder. Today, the interpretative/explanatory material of JAR-OPS 1 and 3 refers to EUROCAE MOPS ED-55 (FDR) and ED-56A (CVR).

The ICAO FLIREC Panel (FLIRECP) has recommended that: « All aeroplanes equipped to utilize digital Air Traffic Services (ATS) communications and required to carry a CVR shall record the digital communications messages on the CVR. »

The airborne flight recorder regulatory framework does not take account of the introduction of Communications, Navigation, Surveillance (CNS)/ Air Traffic Management (ATM) concepts. Air Traffic Services are to become more dependent upon digital communications. Consequently, EUROCAE WG-50 is tasked with the development of specifications to facilitate incident and accident investigation. These documents will be made available as a basis for Civil Aviation regulation.

WG-50 completed a MASPS (Minimum Aviation System Performance Specification) for CNS/ATM message recording systems in November 1998. This document is published by EUROCAE as ED-93. To assist the approval of data-link recording systems, WG-50 is now developing a MOPS (Minimum Operational Performance Specification) documents for airborne equipment.

WG-50 has also determined that ground recording systems within Air Traffic Control Centres often use widely differing standards. Replay of these recordings may therefore prove inefficient and inadequate. To improve this situation and provide “end to end recording” as recommended by the air accident investigators, WG-50 will prepare a standard for ground recording systems.

Working Group 50 will:
a) Review existing MOPS’s ED-55 (FDR) and ED-56A (CVR) and produce a MOPS for airborne recording systems. This new document will define minimum performance specifications for Audio, Parametric, Video and Data-link messages recording:
- to be completed in December 1999 for a first publication including audio and parametric portions
- to be completed with all 4 portions in December 2000.
b) Produce a standard for ground recording systems for CNS/ATM application to be completed in October 2000, taking into account new CNS/ATM development and in particular WG-53/SC-189 activity.

To achieve these new tasks, WG-50 will co-operate with appropriate international bodies and in particular with ISASI, ICAO, and AEEC.

The MOPS for Flight Recorders Systems uses the basis of CVR and FDR MOPS and will integrate data-link messages and video recording. The MOPS will include the latest improvements regarding flight recorders: high intensity fire survivability (1 hour), audio duration (2 hours), extended list of parameters, combined recorders, recorders location, deployable recorders, CVR independent power supply...

ON-BOARD VIDEO RECORDING

Following some recent accident investigations the Bureau Enquêtes-Accidents (BEA) along with other accident investigation authorities (NTSB, TSB, AAIB, BASI, BFU, ...) have been considering the need for flight deck video recording. It is seen as a potential major enhancement to the accident investigation tools available. On-board video recording is also encouraged by ICAO. The last FLIRECP meeting considered the work done by EUROCAE and ARINC/AEEC. FLIRECP has agreed that it’s strongly committed to the introduction of video recordings in an appropriate and agreed format and that this should form part of the future work of the panel.

The Terms of Reference agreed by EUROCAE for WG-50 include the production of a MOPS for on-board video recording. The working group is constituted notably of investigators from Investigation authorities worldwide. Recorder and aircraft manufacturers plus certification authorities are also represented. The group commenced discussion of the fundamental needs of the on-board video recording during the Toulouse meeting in February 1999.

Video recording can be use for the investigation in several different ways.

The flight deck video recording can be split in two areas, the first being a view of the instrument panels, and a second view showing the pilot’s activity area on the flight deck.

External views may show the outside parts of the aircraft. This information may also be useful for the crew members and so for the investigation if the information is recorded.

The third aspect is the cargo bay with special cameras to detect smoke or fire.

During the Toulouse meeting, WG-50 agreed that the accident investigators must define the fundamental needs since the video recordings are intended only for incident/accident investigations purpose.

The fundamental needs will be defined regarding both camera and recording technologies available now or in the near future.

⇒ Why is video required?
It is felt that video recording should not be provided at the expense of the flight data recorder and that there is a need for video data recording to enable accident investigators to fully understand incident/accident of what pilots are seeing.

⇒ What should be recorded?
Having decided that the video data recording discussions should be limited to incident/accident investigation it was proposed that the only useful source of video was coverage of the flight deck instruments. This suggestion was based on the premise that fitting external cameras would be expensive and of limited use. It was further agreed that if operators choose to record other video data (e.g. external), for entertainment system installed on board for commercial expects, it should also be recorded in the accident recorder.

The group discussed the possible use of cockpit area video and agreed that while this could have some accident investigation uses, the potential for misuse of this data posed a sufficiently large problem for the pilot community that any benefits could be outweighed.

CONCLUSIONS

As soon as the MOPS for Flight Recorders System is available, it will be proposed to JAA as amendments for JAR-OPS 1 and 3. WG-50 hope to see these official requirements in place by 2005.

The next step for airborne recording systems may see combined recorders using Solid State Memory to record audio, video, parameters, data-link messages in a single, crash protected, box.

ACKNOWLEDGEMENTS

To all WG-50 sub-group chairmen, secretaries and members for their work to enhance safety.